MARICOPA ASSOCIATION OF GOVERNMENTS

HIGH CAPACITY TRANSIT PLAN

High Capacity Transit Working Group

Steve Schibuola, IBI Group

December 2002

PROJECT MILESTONES

MILESTONE 4 – Oct 2002

Evaluation of Alternatives

MILESTONE 5 – Dec 2002

Regional High Capacity Transit Plan

MILESTONE 6 – Dec/Jan 2003

Final Report

KEY TASKS COMPLETED

- Agency Interviews
- Evaluation of Peer Transit Systems
- Selected Preliminary Corridors/Technologies
- Initial Corridor Assessment
- Definition of Alternative HCT Networks
- Preliminary Evaluation of Corridors
- Cost Effectiveness Rankings
- Refined Costs and Ridership
- Specific Reappraisal of Commuter Rail

MILESTONE 5

Recommended Network:

- **Finalize corridor evaluation**
- **Re-appraise Commuter Rail**
- **Preliminary operating characteristics**
- **Refine ridership, revenues, costs**

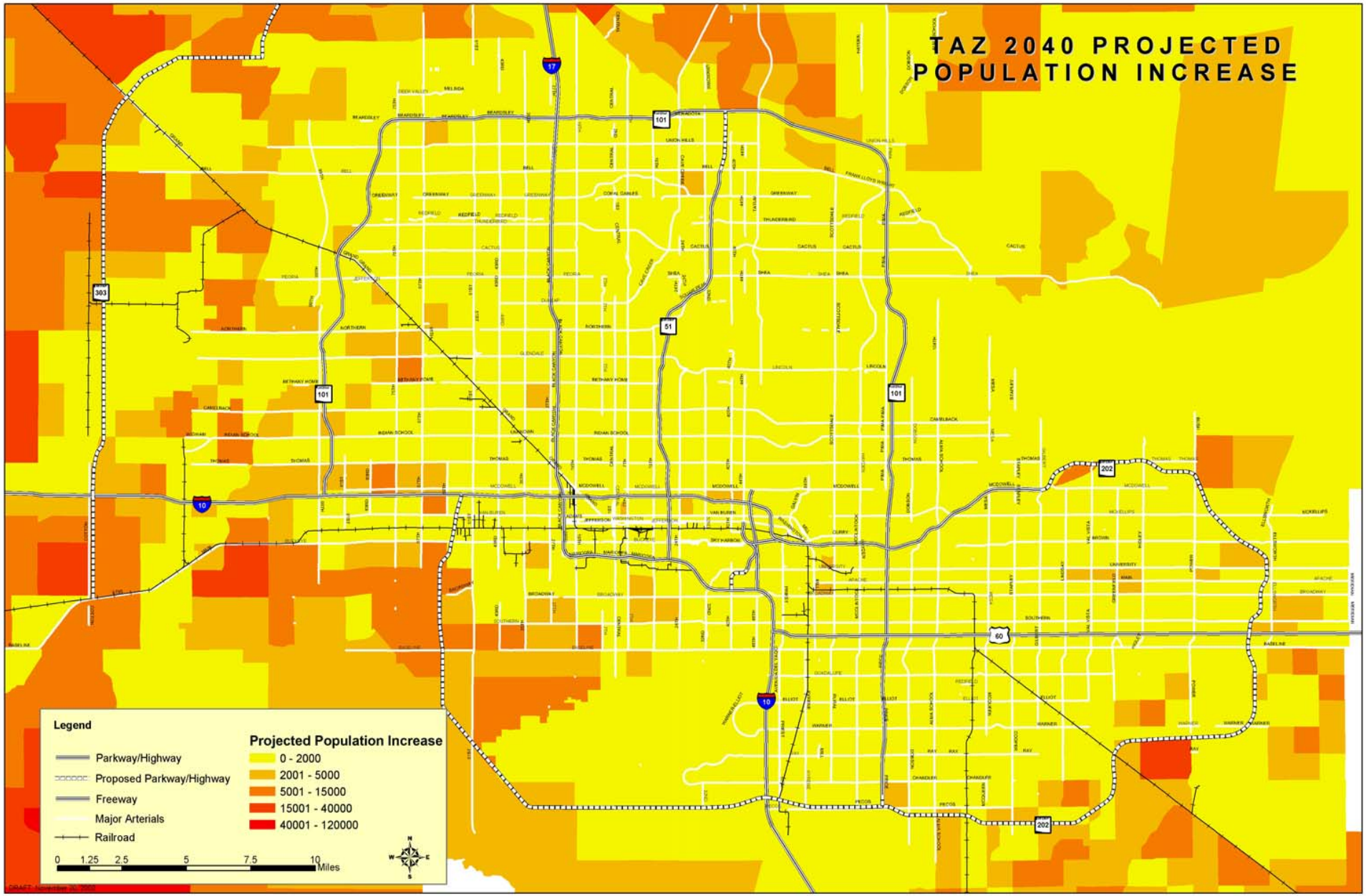
- **Develop implementation schedule, phasing**

Completion: December 2002

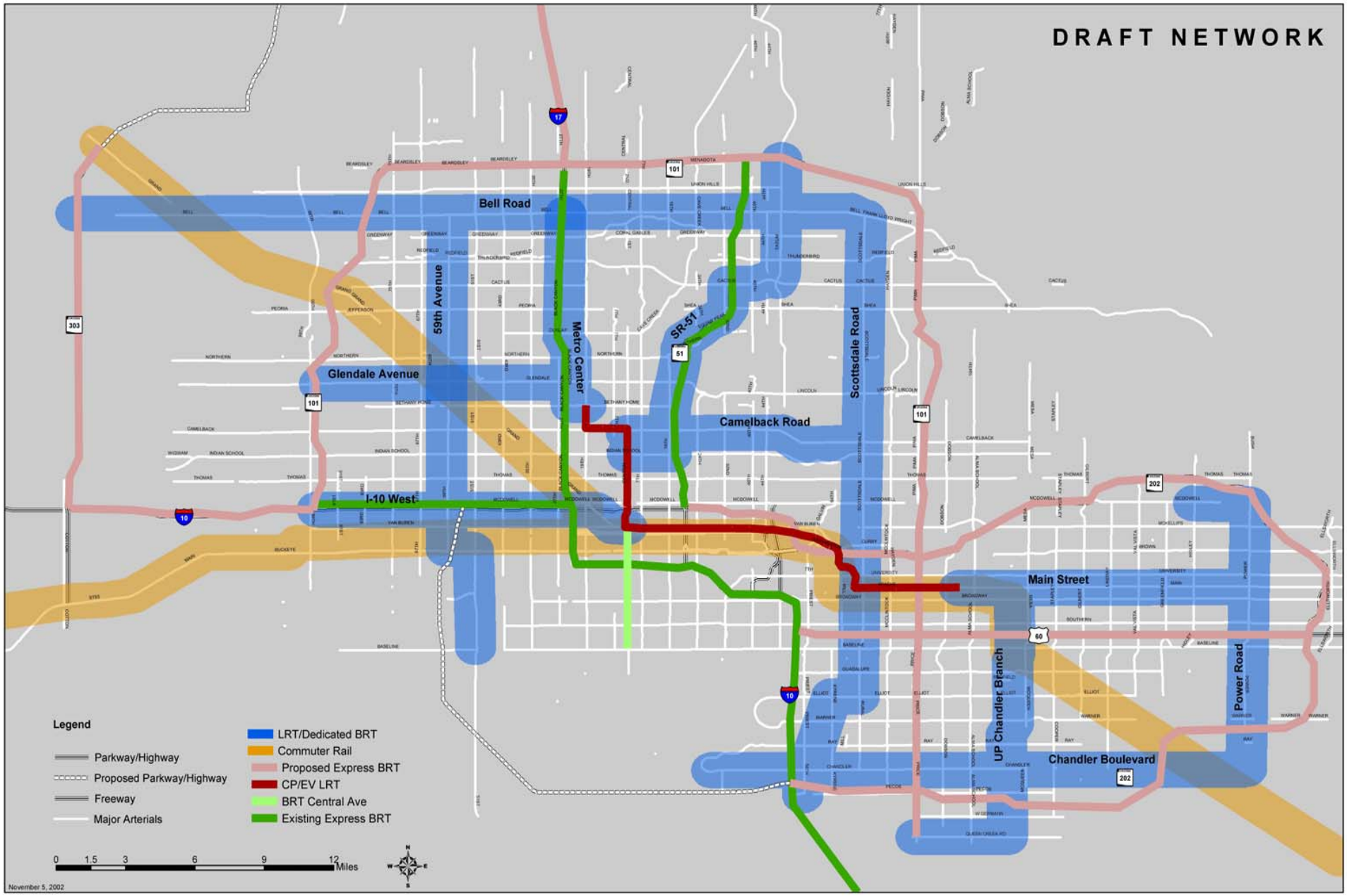
WHAT'S NEW

- Incorporation of DRAFT2 Forecasts
- Refinements to Network:
  - Central Avenue LRT
  - Northern/Camelback Consolidation to Glendale
  - Scottsdale/Rural/UP Tempe Branch Consolidation
  - Metrocenter/I-17 (CP/EV) LRT Extension to Bell
  - UP Chandler Branch LRT/BRT
  - Additional station on BNSF at Grand/Loop 303
- Commuter Rail Costs, Phasing, Technology & Ridership

MAG REGION IS GROWING



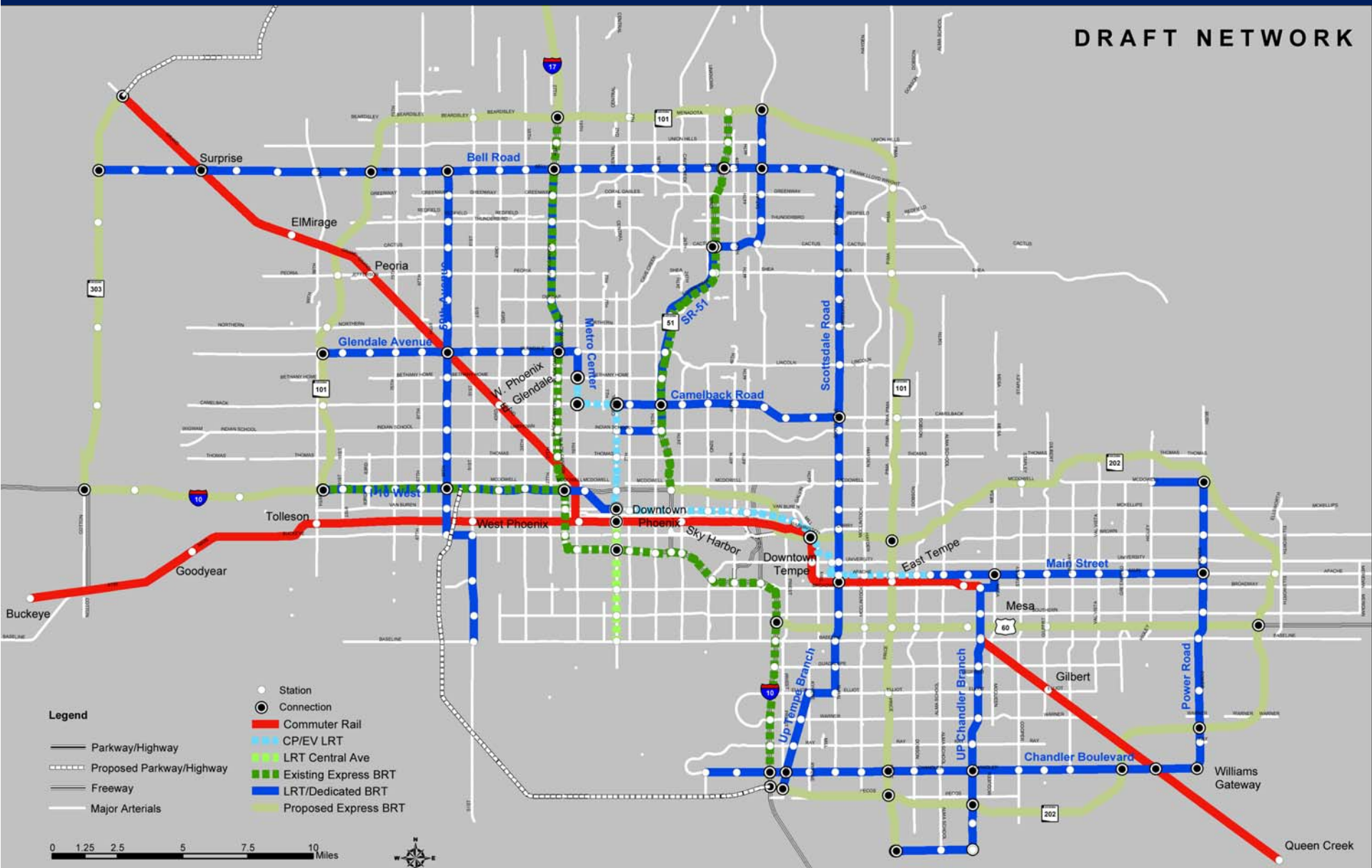
DRAFT FINAL NETWORK



COMMUTER RAIL: REFINEMENTS

- Refined strategies to reduce cost/infrastructure
- New technologies – Diesel Multiple Unit (DMU) have promise (U.S. and European products)
- Some reverse commute, more stations beneficial
- Ridership improves primarily through new DRAFT2 forecasts

NETWORK CONNECTIONS



COMMUTER RAIL: REFINEMENTS

Data Input	MS 4 Assumption	MS 5 Assumption
Population Projections	Interim projections 6.4 million residents	Updated projection 7.4 million residents
Stations	BNSF 6 stations	BNSF 7 stations, other corridors same
Station Catchments	3 mile primary (to 5 miles secondary)	3 mile primary (to 10 miles secondary)
Costs	No change from revised version in MS 4 report	Adjustments to vehicles and parking for new riders
Commute	No reverse commute	Reverse commute assumed on all corridors

COMMUTER RAIL: BOARDINGS

COMMUTER RAIL: PHASING

- Phase 1 Service
  - 3 Peak Period Trains, inbound am, outbound pm
- Phase 3 Service
  - 15 minute peak service inbound direction
  - 30 minute peak service outbound direction
  - Off-peak service (30 to 60 min frequency)
  - Reverse commute
- Intermediate phasing will vary by corridor, ridership, funding availability

COMMUTER RAIL: PHASING

Corridor & Phase	Total Capital Cost ($ millions)	Total Ridership
BNSF PH 1	$353.48	6,391
BNSF PH 3	$741.64	16,145
UP Southeast PH 1	$282.88	2,235
UP Southeast PH 3	$608.84	6,471
UP Yuma PH 1	$190.28	4,722
UP Yuma PH 3	$471.67	12,034

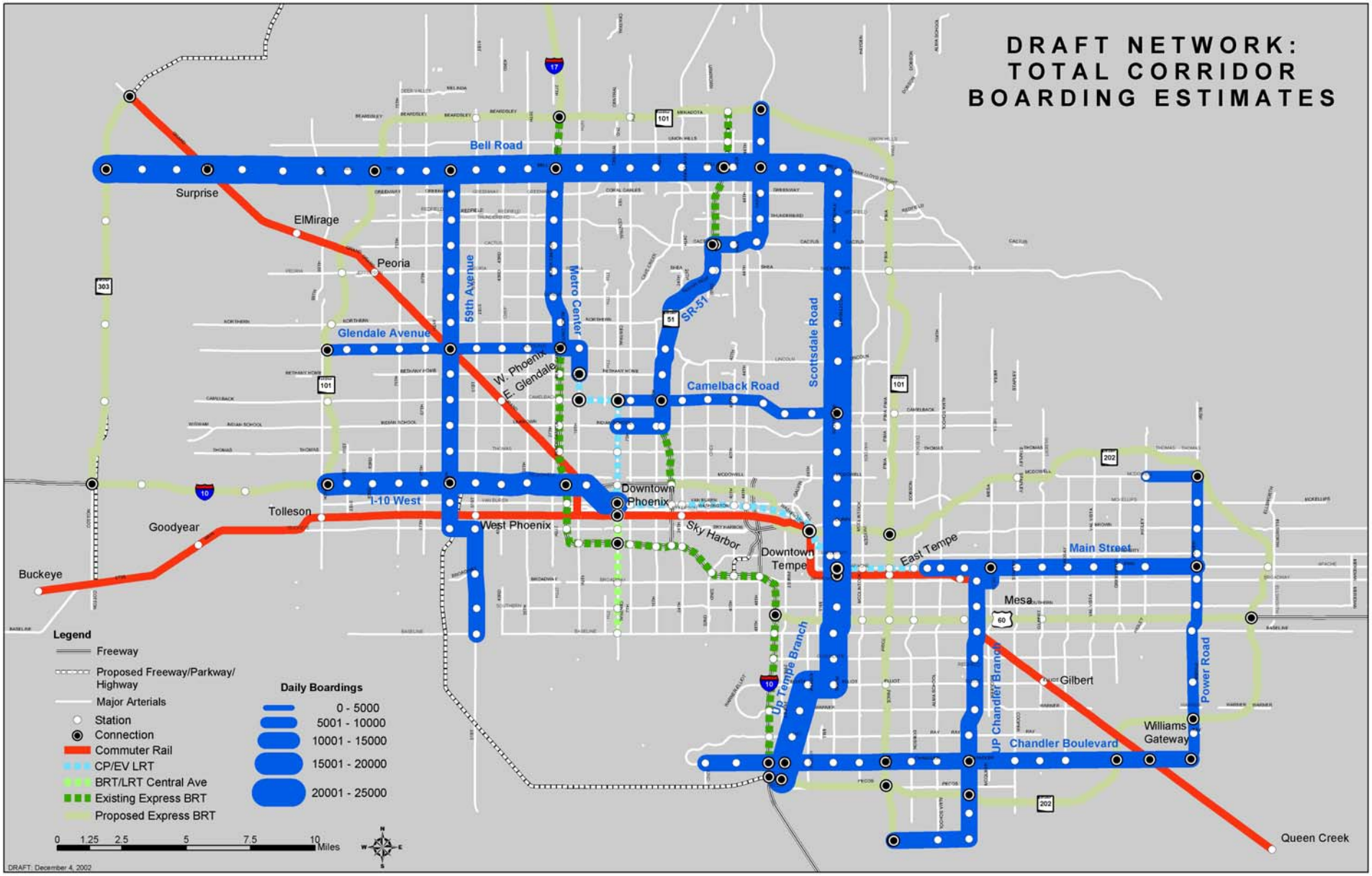
COMMUTER RAIL - RECOMMENDATIONS

- DMU-based advantages:
  - U.S. product – Colorado Railcar
    - FRA certification
    - Several configurations
    - Aero with bi-levels
    - Startup simplicity
  - European product- Bombardier Talent
    - Canada but not FRA certified
    - Widely used in Europe

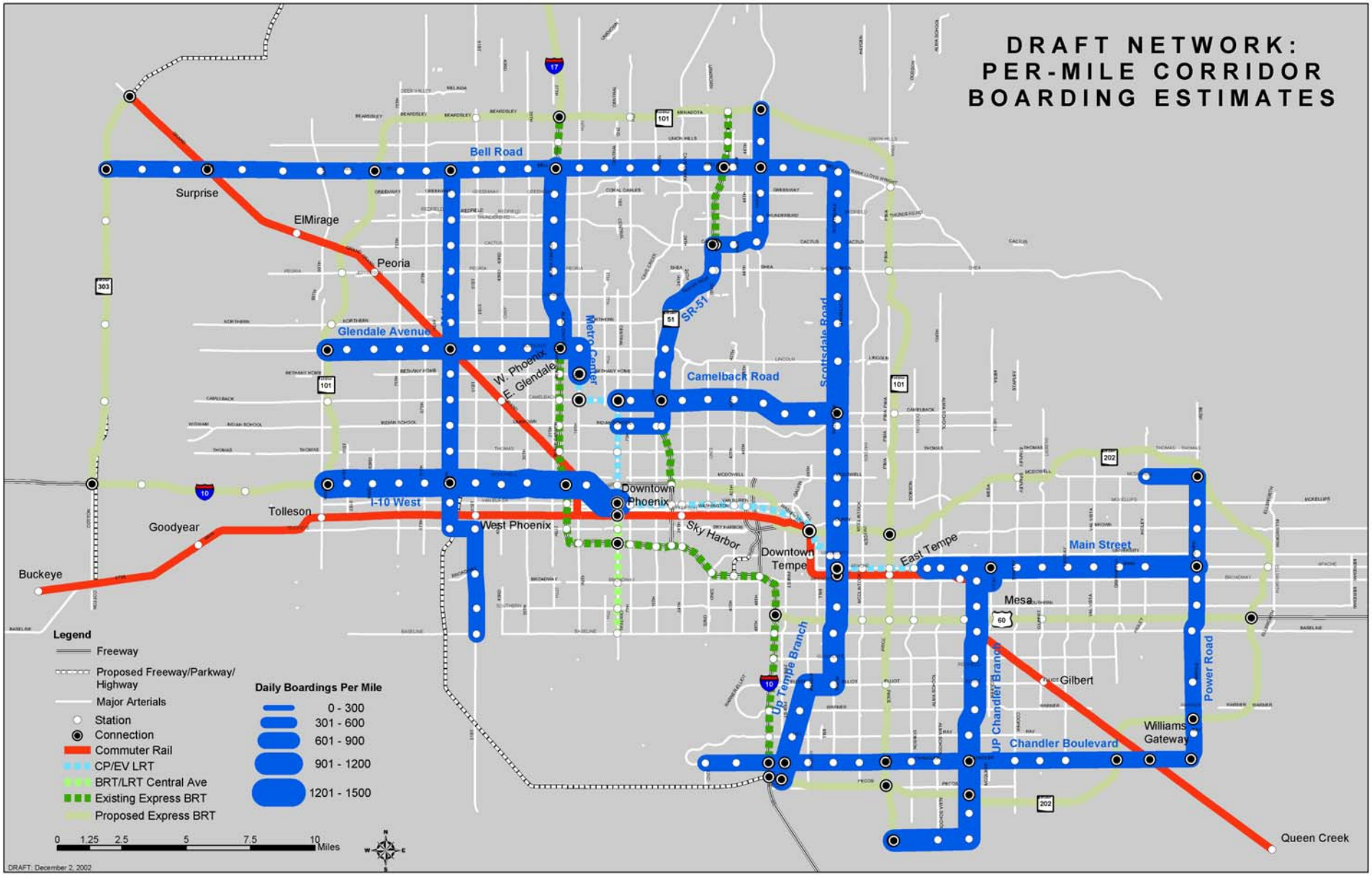
LRT/BRT: REFINEMENTS

- Adjusted station spacing to be consistent with CP/EV MOS
- I-10 West costs now assume an at-grade system in median
- Ridership forecasts revised to reflect DRAFT2 forecasts

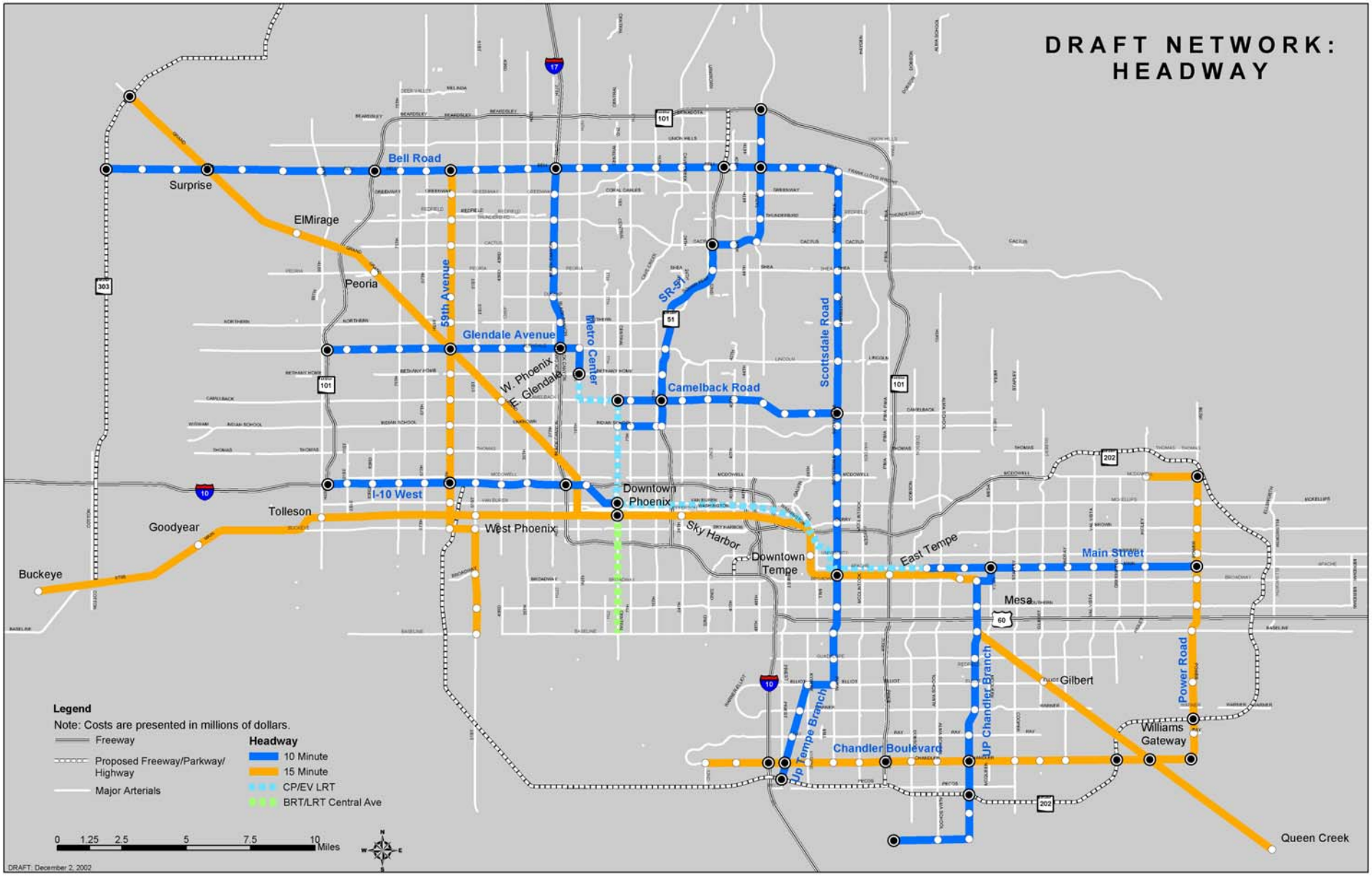
LRT/BRT: RIDERSHIP OVERVIEW



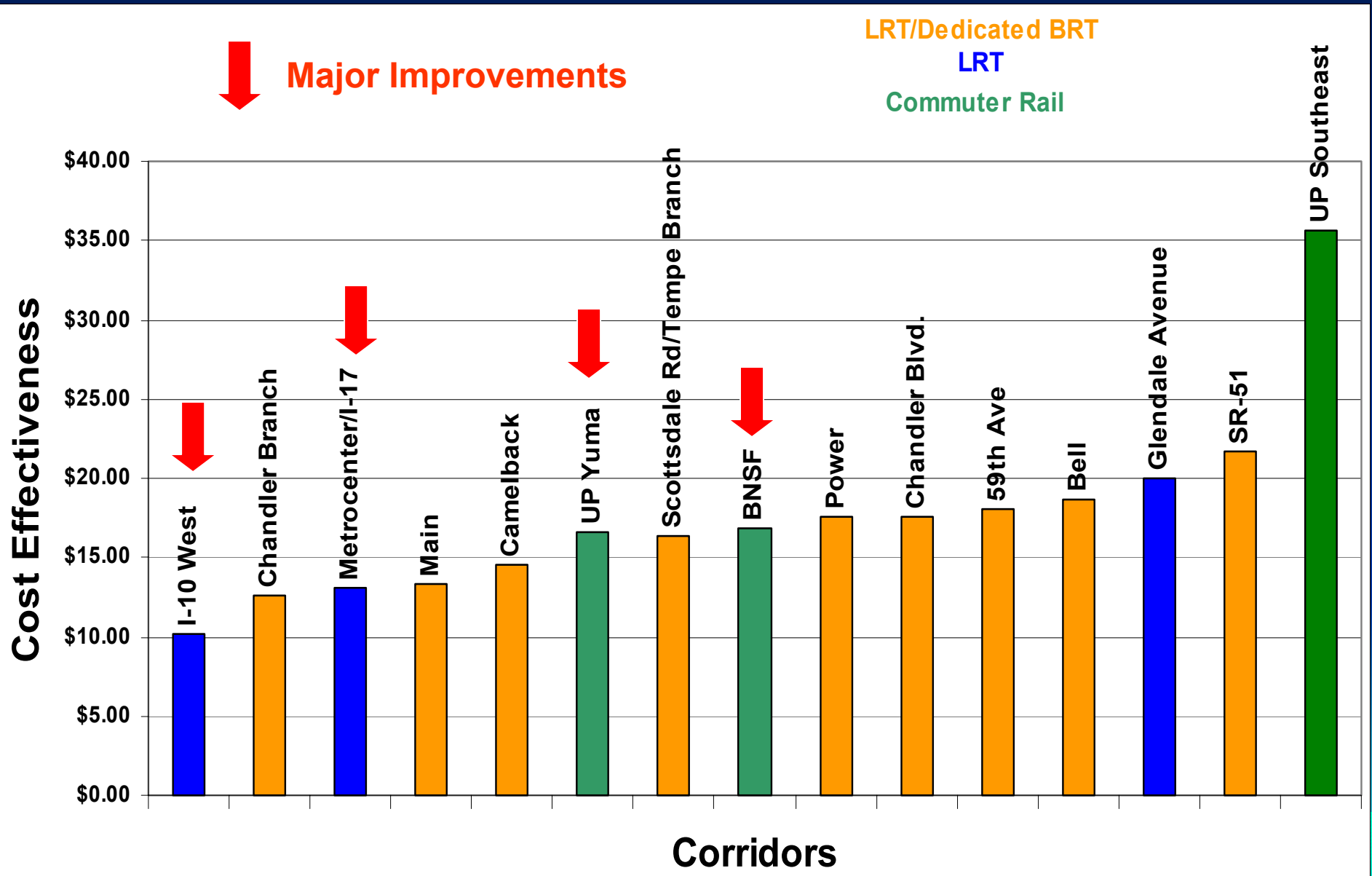
LRT/BRT: RIDERSHIP DENSITY



NETWORK: HEADWAYS OVERVIEW



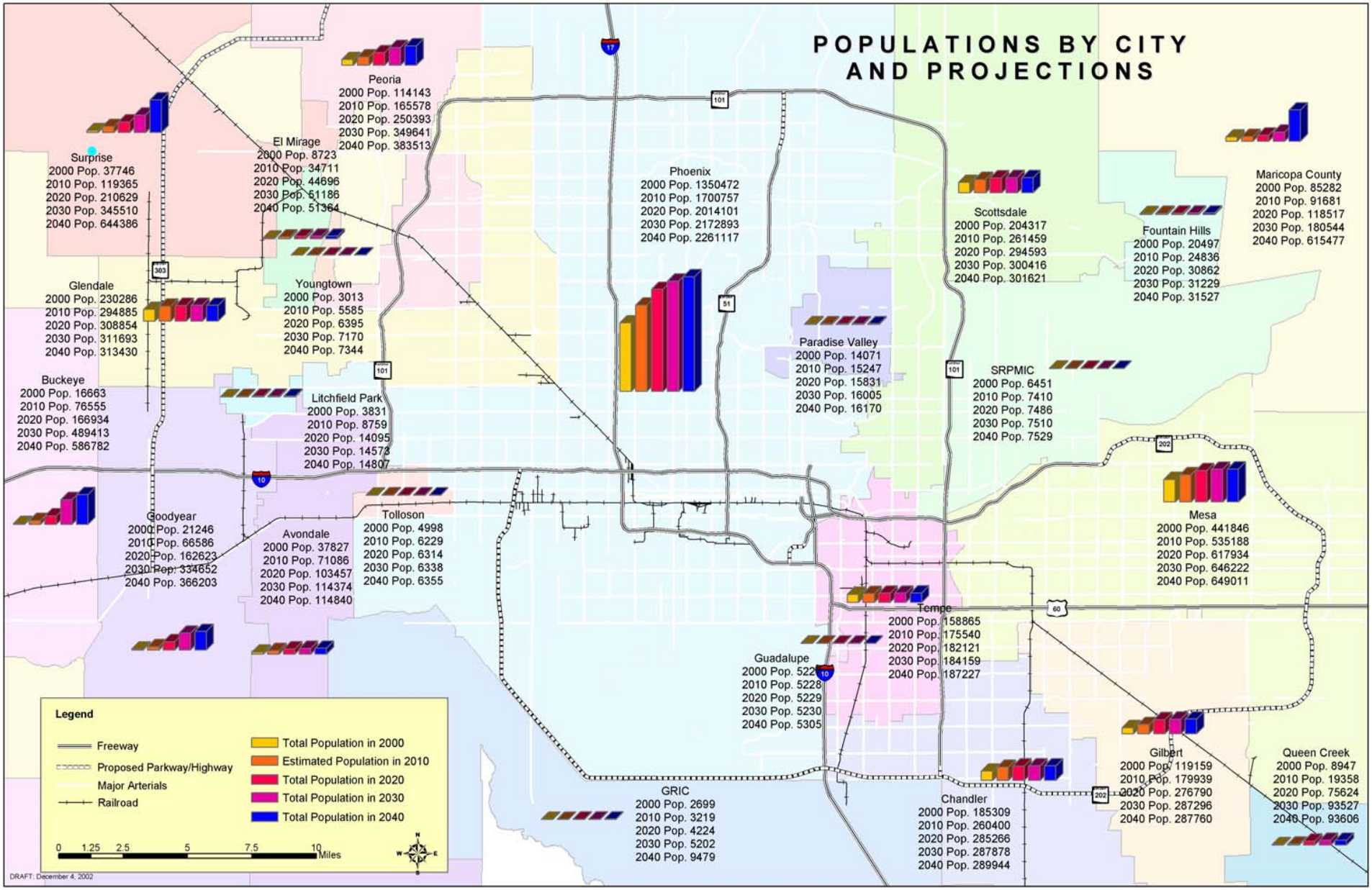
REVISED COST EFFECTIVENESS



GROWTH and PHASING

- Rates of Growth highest in West Valley
  - But major demand deferred to 2040?
  - Phoenix and East Valley demand sooner
- Corridor connectivity and early growth
  - N-S corridors, Phoenix LRT and BRT

GROWTH TIMING



PHASING OVERVIEW

- Potential Early Corridors
  - Scottsdale/Rural/UP Tempe, Main St Mesa, I-10 West, Metrocenter, Glendale, SR-51, Camelback, UP Chandler, Commuter Rail startup
- Potential Later Corridors
  - Chandler Blvd, Bell, 59th, Power Road, Commuter Rail full

CONCLUSIONS

- Arterial-based LRT/BRT Network at the core
  - It's where the demand is located
  - Densities drive the grid-based network
  - Most corridor demand more BRT suited
  - Later growth may require LRT

- Commuter Rail
  - Can provide regional strategic connectivity
  - Longer-haul trips but volume contribution limited relative LRT/BRT

RECOMMENDATIONS

NEXT STEPS

- **Deeper Investigation of Key Commuter Rail Opportunities:**
  - **BNSF Grand Avenue relocation package**
  - **More detailed ridership, revenue and cost appraisal of UP Yuma and Southeast lines**

- **Corridor-Specific MIS/AA Packages for BRT/LRT Opportunities:**
  - **Alignment/technology alternatives (e.g. Main St Mesa, I-10 West)**
  - **CP/EV Connections – Glendale, SR-51, Camelback, Metrocenter/I-17**

RECOMMENDATIONS

NEXT STEPS

- **Regional Management – Regional Funding**
  - **Review role & function of current operators in HCT Network**
- **Partnership Opportunities**
  - **Development-supported corridor investment (esp. W Valley)**
  - **Look beyond design & build, spread the risk – DBO/M?**

MILESTONE 6

- Combine Working Papers
- Complete and incorporate MAG model run
- Final Report
- Regional Presentations

Completion: Dec/Jan 2003

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